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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YOON, TAE H

ART UNIT PAPER NUMBER

1714

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,888

Applicant(s)

CULBERTSON ET AL.

Examiner

Tae H Yoon

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-19, drawn to a polymer and a method of making thereof, classified in class 526, subclass 317.1+.
- II. Claim 20, drawn to a kit comprising monomers, classified in class 524, subclass 492+.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product is deemed to be useful as an adhesive and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants. Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the

Art Unit: 1714

search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ms. Frost on May 4, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-19. Affirmation of this election must be made by applicant in replying to this Office action. Claim 20 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recited molecular weight is indefinite in not specifying a particular average such as a number average molecular weight or weight average molecular weight since it is dependent on the polydispersity. See examples 11-18 of US 5,369,142.

Art Unit: 1714

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-11, 13, 15, 18 and 19 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Culbertson et al (ACS Symposium Series, 755, 2000, pp. 222-232).

Culbertson et al teach the instant polymer and glass-ionomer dental restorative compositions in abstract and tables I and II and at page 223, lines 6-7, page 225, Formulations and page 232, line 7-8. Thus, the instant invention lacks novelty.

Claims 1-4, 6-10, 15 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by Mallya et al (US 4,812,541).

Art Unit: 1714

Mallya et al teach the instant polymer in examples 1 and 2 and claim 18. Thus, the instant invention lacks novelty.

Claims 1, 4, 6, 8-10 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chen et al (US 5,296,218).

Chen et al teach the instant polymer in abstract and table 1, and at col. 5, lines 35-44. Thus, the instant invention lacks novelty.

Claims 1, 4-11, 15, 18 and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35(4), pp 547-561 (1998).

Xie et al teach the instant polymer and glass-ionomer dental restorative compositions in abstract, Figure 1 and tables 3 and 4, and at page 550, lines 1-5. Thus, the instant invention lacks novelty.

Claims 1, 4-13, 15, 18 and 19 are rejected under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35(4), pp 547-561 (1998) in view of Culbertson et al (ACS Symposium Series, 755, 2000, pp. 222-232), Culbertson et al (US 5,369,142) or Lu et al (US 2001/0051671 A1).

The instant invention further recites calcium fluoroaluminosilicate glass and molecular weight over Xie et al. However, the use of said calcium fluoroaluminosilicate

Art Unit: 1714

glass in dental composition is a routine practice in the art as taught by Culbertson et al (ACS Symposium Series, page 223, lines 6-7), Culbertson et al (col. 3, lines 43-44 of US 5,369,142) or Lu et al (line 7 of [0044]). Culbertson et al also teach the instant molecular weight (examples 11 and 13 of US 5,369,142)

It would have been obvious to one skilled in the art at the time of invention to utilize calcium fluoroaluminosilicate glass taught by Culbertson et al or Lu et al in Xie et al as a glass component since Xie et al teach employing a glass component and since said calcium fluoroaluminosilicate glass is the art well known glass filler for dental compositions, or further to make a copolymer having the recited molecular weight in Xie et al with teaching of Culbertson et al (US 5,369,142) since the use of a copolymer having such molecular weight is also art well known.

Claims 1-12 and 14-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35(10), pp 1631-1650 (1998).

Xie et al teach the instant polymer and glass-ionomer dental restorative compositions in abstract, Figure 1A and 2 and table 1, and at page 1639, lines 17-18. Thus, the instant invention lacks novelty.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as obvious over Xie et al (J.M.S.-Pure. Appl. Chem., A35(10), pp 1631-1650 (1998) in view of Culbertson et al

Art Unit: 1714

(ACS Symposium Series, 755, 2000, pp. 222-232), Culbertson et al (US 5,369,142) or Lu et al (US 2001/0051671 A1).

The instant invention further recites calcium fluoroaluminosilicate glass over Xie et al. However, the use of said calcium fluoroaluminosilicate glass in dental composition is a routine practice in the art as taught by Culbertson et al (ACS Symposium Series, page 223, lines 6-7), Culbertson et al (col. 3, lines 43-44 of US 5,369,142) or Lu et al (line 7 of [0044]).

It would have been obvious to one skilled in the art at the time of invention to utilize calcium fluoroaluminosilicate glass taught by Culbertson et al or Lu et al in Xie et al as a glass component since Xie et al teach employing a glass component and since said calcium fluoroaluminosilicate glass is the art well known glass filler for dental compositions.

Claims 1, 5, 8-13, 15, 18 and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Culbertson et al (US 5,369,142).

Culbertson et al teach the instant polymer and glass-ionomer dental restorative compositions at col. 3, lines 31-46, col. 4, lines 55-56, col. 5, lines 10-60 and in examples 11-21. The instant molecular weights are seen examples 11 and 13. Thus, the instant invention lacks novelty.

Art Unit: 1714

Claims 1-5 and 8-19 are rejected under 35 U.S.C. 103(a) as obvious over Culbertson et al (US 5,369,142) in view of Mitra (US 5,925,715) or Xie et al (J.M.S.-Pure. Appl. Chem., A35(10), pp 1631-1650 (1998).

The instant invention further recites a visible light curable moiety over Culbertson et al. However, Culbertson et al teach further modification to include visible light-curable formulations at col. 3, lines 55-57.

Mitra (col. 3, line 46 and examples 6-8 and 11) and Xie et al (page 1636, Results and Discussion and Figure 2) teach grafting of 2-isocyanatoethyl methacrylate on carboxylic acid groups of copolymers.

It would have been obvious to one skilled in the art at the time of invention to utilize 2-isocyanatoethyl methacrylate taught by Mitra or Xie et al in Culbertson et al in order to obtain a graft copolymer having pendant visible light-curable moiety since Culbertson et al teach further modification to include visible light-curable formulations and since such modification is well known as taught by Mitra and Xie et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tae H Yoon
Primary Examiner
Art Unit 1714

THY/May 4, 2004